

**Security Council**

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**United Nations Monitoring, Verification and
Inspection Commission****Note by the Secretary-General**

The Secretary-General has the honour to transmit to the Security Council the twenty-seventh quarterly report on the activities of the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC). It is submitted by the Acting Executive Chairman of UNMOVIC in accordance with paragraph 12 of Security Council resolution 1284 (1999).

**Twenty-seventh quarterly report on the activities of the
United Nations Monitoring, Verification and Inspection
Commission in accordance with paragraph 12 of Security
Council resolution 1284 (1999)****I. Introduction**

1. The present report, which is the twenty-seventh submitted in accordance with paragraph 12 of Security Council resolution 1284 (1999), covers the activities of the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) during the period from 1 September to 30 November 2006.

II. Developments

2. During the period under review, the Acting Executive Chairman continued the practice of briefing the respective Presidents of the Security Council, representatives of Member States and officials of the Secretariat on the activities of UNMOVIC. In connection with the closing of the Commission's training course in Cologne, Germany, (see para. 18 below), the Acting Executive Chairman met with Ambassador Friedrich Gröning, Commissioner of the German Federal Government for Arms Control and Disarmament, in Berlin on 10 November.



III. Other activities

Compendium

3. Work continues on the production of a version of the compendium from which all proliferation and other sensitive information has been removed.

Correspondence with Iraq

4. In view of Iraq's plans to accede to the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction,¹ on 18 August the Permanent Representative of Iraq to the United Nations wrote to UNMOVIC requesting copies of "certificates of destruction" of the chemical weapons-related material and equipment that had been destroyed under United Nations supervision, as well as a copy of the handover protocol signed in 1994 between Iraq and the United Nations Special Commission established pursuant to Security Council resolution 687 (1991) concerning the transfer of the Muthanna chemical warfare agent production site to the custody of Iraq. The protocol provides a full account of destruction activities conducted at Muthanna between 1992 and 1994 and sets out safety and security measures to be applied at the site, and remains in force today.

5. On 6 September another request from the Permanent Representative of Iraq followed, seeking a copy of UNMOVIC's working document of 6 March 2003 concerning unresolved disarmament issues and Iraq's responses thereto.

6. On 7 September, the Acting Executive Chairman informed the Council of his intention to respond positively to both requests and that due regard would be taken to remove any proliferation and other sensitive material. The Commission's experts prepared all relevant documents, eliminated proliferation and other sensitive information from the material and provided the mission with CD-ROMs covering both requests, on 15 September and 10 October, respectively. The materials submitted included a large number of destruction certificates, the handover protocol and 54 documents regarding unresolved disarmament issues. In total, over 1,200 pages of documents were provided in electronic format.

Indicators

7. By reviewing and assessing the experience of the Commission's inspections gained over time in Iraq in terms of the methodologies developed and deployed, practical and important elements are emerging. Among them is the importance of comprehensively seeking information from the widest possible range of sources. Continuing analysis of such information could provide indicators of possible undeclared proscribed weapons activity. In turn, this has the potential to lead to and identify avenues of investigation that would not otherwise be so readily apparent.

8. The understanding and use of such indicators by UNMOVIC staff is being developed as a significant component of its inspection methodology. The emphasis focuses on identifying areas and types of data including through the use of computer-based tools. It is expected that the use of such indicators will contribute significantly to a more thorough and comprehensive methodology for the United

¹ United Nations, *Treaty Series*, vol. 1974, No. 33757.

Nations by creating a more efficient and effective multilateral monitoring, verification and inspection capability. This would be incorporated into the training process. A paper describing this work in more detail includes examples and is annexed to the present report.

IV. Other issues

Field offices

9. In Baghdad, the two remaining UNMOVIC national staff, now co-located with the United Nations Assistance Mission for Iraq in the international zone, maintained the equipment that had been brought from the United Nations Canal Compound when it closed, checked packing lists and unpacked, set up and tested for serviceability all the office support equipment. Weapons artefacts were separated from other equipment and secured.

10. In Cyprus, a catalogue of all the equipment recovered from the Canal Compound was prepared and sent to New York. The final batch of computer equipment recovered belonging to the International Atomic Energy Agency was dispatched to Vienna. The inspection and laboratory equipment recovered from the chemical and biological laboratories was set up in preparation for maintenance by UNMOVIC experts.

11. The Cyprus Field Office continued to support the World Food Programme and the United Nations Humanitarian Air Services in their Lebanon mission by providing equipment and office space for their daily use up to 1 October 2006.

Staffing

12. At the end of November 2006, UNMOVIC headquarters core staff at the Professional level totalled 34. The staff are drawn from 19 nationalities; seven are women.

Technical visits, meetings and workshops

13. In September, the Acting Executive Chairman and two other staff members attended the fiftieth General Conference of the International Atomic Energy Agency in Vienna.

14. In September, the Acting Executive Chairman and an UNMOVIC expert attended a conference on chemical, biological, radiological and nuclear counter-proliferation and responses in Paris and presented a paper on verification of weapons of mass destruction. The conference covered areas related to technical, political and strategic responses to chemical, biological, radiological and nuclear weapons, including recent advances for future development and application in military and civil industries.

15. In October, an UNMOVIC expert attended the Second National Conference on Environmental Sampling and Detection for Bio-Threat Agents in New York. The Conference focused on advances in the science of environmental sampling and detection specifically for biological threat agents.

16. An UNMOVIC expert is attending the Sixth Review Conference of the States Parties to the Biological Weapons Convention, being held in Geneva from 20 November to 8 December.

Training

17. In the period under review, UNMOVIC conducted two training courses for its roster personnel. The first was held in Ploiesti, Romania, from 3 to 12 October. It was the second multidisciplinary technology course designed to develop a better understanding of the technologies and equipment involved in the operation of refineries and petrochemical plants and their relevance to monitoring under the UNMOVIC mandate (the first such course was conducted in Canada in October 2005). A total of 20 experts from 15 Member States and one UNMOVIC headquarters staff member participated in the course. The participants were able to visit a number of refinery and petrochemical complexes and to conduct a practical inspection exercise at one of the facilities.

18. Another course was conducted in Cologne, Germany, from 30 October to 10 November. Nineteen experts from 13 Member States participated in the course, the main objective of which was to develop practical skills for inspection and monitoring of dual-use production equipment and capabilities in the missile area. The course included familiarization visits to relevant facilities as well as a practical inspection exercise.

19. The Commission is grateful to the Governments of Germany and Romania for their support for UNMOVIC training courses.

V. College of Commissioners

20. On 15 November, Francis Record (United States of America) tendered his resignation from the College of Commissioners upon his departure from the State Department. The Secretary-General has since appointed Robert Witajewski (United States of America) to the College.

21. The UNMOVIC College of Commissioners convened its twenty-fourth regular session in New York on 20 and 21 November. Observers from the International Atomic Energy Agency and the Organization for the Prohibition of Chemical Weapons also attended.

22. The Acting Executive Chairman briefed the Commissioners on the activities of UNMOVIC since their last meeting and on the planned activities for the next quarter. In addition, presentations were made on recent imagery of Iraqi sites and on open-source information on Iraq of relevance to the Commission's mandate. A presentation was also made on the framework of the UNMOVIC training manual.

23. The February session of the College had an initial discussion of a draft paper on archiving UNMOVIC's collection of material. Several Commissioners offered to provide additional comments after consulting experts on archiving. The Commission is continuing to review and process information collected for the purpose of electronic storage and retrieval.

24. The College expressed its appreciation to the Acting Executive Chairman for his comprehensive introductory statement and also expressed support for the

ongoing and planned future activities for 2007 as outlined by the Acting Executive Chairman in his oral statement and in the quarterly report. Given the continuing uncertainty as to when the Security Council will reconsider the mandate of UNMOVIC, the College recognized the difficulties faced by UNMOVIC in planning an annual work programme.

25. The College welcomed the presentations that were made on: (a) information on captured Iraqi material released through the website of the Foreign Military Studies Office of the United States Army; (b) an overview and evaluation of the most recently acquired imagery from various sites, including the Muthanna State Establishment; (c) open-source information relevant to UNMOVIC's mandate through the use of Iraqi websites and open-source geographical information; and (d) an introduction to the training manual under preparation. The presentations were found to be informative. The College noted the continuation and possible expansion of agricultural activities outside and within the Muthanna perimeter close to the bunkers in which a variety of chemical munitions filled with nerve agents were known to have been stored, which might pose safety and health hazards.

26. The College also welcomed the progress on an edited version of the compendium and the ongoing work on indicators of possible proscribed activities. The College commended UNMOVIC's training activities and the Chairman's intention to update the roster of experts trained as inspectors. It also commended the preparation of a training manual for inspectors based on the experience gained by UNMOVIC.

27. Finally, the College noted the assistance provided to the Iraqi authorities by UNMOVIC in connection with Iraq's planned accession to the Chemical Weapons Convention and on the provision of additional information requested by Iraq, appropriately edited for non-proliferation and other sensitive information.

28. It was decided tentatively to hold the next meeting of the College on 20 and 21 February 2007.

29. In accordance with paragraph 5 of resolution 1284 (1999), the Commissioners were consulted on the contents of the present report.

Annex

Use of indicators in the investigation of programmes of weapons of mass destruction

1. During a review of the experience of the United Nations Monitoring, Verification and Inspection Commission as regards United Nations inspections in Iraq, a number of important elements emerged, among them the value of indicators in leading to fruitful investigations, as well as an understanding of how and where those indicators were found (or, conversely, not detected). It has been recognized that many useful indicators may not always lie in the site being inspected or in equipment being used, but rather would arise from a systematic and comprehensive collection of information in a number of different areas in relation to a particular site or activity. Analysis of such information would often yield indicators of possible undeclared proscribed activity or show avenues of investigation that would not otherwise be readily apparent.

2. The figure below identifies separate domains of information where indicators could be found. Information can be drawn from a variety of sources including on-site inspections, the submission of declarations, sampling, aerial imagery, examination of open-source information, intelligence, supplier data and interviews with those involved in the programme. While each of these domains needs to be investigated separately and/or in parallel, it is clear that not all will have relevance in every case or will yield indicators that would lead to an outcome on their own. It is often the combination or association of indicators that may lead to a breakthrough or reveal evidence of proscribed activity.

Domains of information



3. The formulation of a specific framework dealing with indicators, based on the above findings, will be useful in providing clarity, awareness and a systematic approach to the use of indicators within an overall inspection methodology. Such a methodology is useful in training inspectors so that they will be more likely to explore systematically less apparent sources of information to derive a more accurate understanding of activities or uncover false or undisclosed information.

4. The section below sets out descriptions of the various domains shown in the figure, as well as some representative indicators that may arise from them in the course of inspection and analysis. The section concludes with some examples of situations where combinations of indicators have led to the uncovering of parts of Iraq's programmes of weapons of mass destruction and other information that had not been disclosed to the United Nations.

Examples of possible indicators in different domains of information

Facilities and sites

5. This domain includes physical location and its associated infrastructure, management and ownership. It also includes recent building construction or alterations within a building or modifications to a site, including the configuration of the production lines. The following are examples of indicators that fall within this domain:

- General layout of a site
- Civilian organization administered by a military authority
- Extraordinary security features and guard arrangements
- Recent or transient changes in affiliation and/or ownership
- Restrictions in access to the site that do not fit the level of classification of the site's products
- Presence of departments (especially with former military staff) without a reasonable explanation
- Recent remodelling and renovation

Activities

6. This domain includes site operations and functions (past, ongoing or planned) such as research, development, testing and evaluation, production, procurement and storage. The following are examples of indicators that fall within this domain:

- Activities inconsistent with the final product
- Inconsistencies in relation to work schedules or unusual work patterns
- Quantities of products, by-products or wastes inconsistent with the declared scope or scale of activities

Technologies

7. This domain includes the application of scientific knowledge for practical purposes, including processes. The following are examples of indicators that fall within this domain:

- Modification of known technologies
- Use of inappropriate or unusual process techniques
- Acquisition of new technologies without clear application to a declared purpose
- Unwarranted use of specific technologies

Equipment

8. This domain includes dual-use machines, devices or computer hardware used in an operation or activity. The following are examples of indicators that fall within this domain:

- Presence of special dual-use equipment (such as highly corrosion-resistant equipment)
- Presence of equipment inconsistent with the declared activities
- Absence of equipment required for the declared activities
- New equipment stored for a long time unused
- Dismantled equipment in good shape presented as "old and not working"
- Contradictory statements regarding use or working schedules of equipment
- Presence of health and safety systems and/or equipment for chemical and biological containment

Documents

9. This domain includes annual reports, logbooks and letters of instruction, personal notebooks, computer files and correspondence. Uncovering or obtaining this kind of information has in the past put pressure on Iraq to disclose more information. The following are examples of indicators that fall within this domain:

- Gaps in logbooks (production records, equipment, storage or quality control)
- Signs of destruction or relocation of documents immediately before the arrival of inspectors
- Working documents or drafts at variance with official statements or declarations
- Inability to demonstrate the commercial relevance of a civil programme
- Name of the facility and its subordinates used differently in different documents

Materials

10. This domain includes consumables or inputs for production processes such as raw materials, feed stock and intermediate industrial products used in production. The following are examples of indicators that fall within this domain:

- Presence of dual-use raw materials in quantities inconsistent with the end products or the purpose of the facility
- Presence of dual-use intermediates useful for weapons of mass destruction purposes that are not being converted into legitimate end products
- Acquisition or presence of decontamination materials not consistent with the profile of the facility

Weapons

11. This domain includes information on weapons systems, including aerial bombs, artillery projectiles, rockets and missiles, spraying devices and explosive devices that can be configured to disseminate weapons of mass destruction agents. The following are examples of indicators that fall within this domain:

- Presence of weaponization specialists at civilian industries
- Capabilities and examples of reverse engineering or modifications of imported munitions
- Presence of conventional munitions at incongruous non-military sites
- Special filling equipment or unusual internal coatings or design of munitions and/or weapons
- Unusual munitions design

Procurement

12. This domain includes contracts, bids, tenders, letters of credit and visits to foreign companies and the acquisition of promotional material from suppliers. The following are examples of indicators that fall within this domain:

- Procurement efforts for critical equipment (including black market and second-hand sources)
- Procurement requests from different facilities conducted by an intermediate facility or middleman
- Use of unusual transaction and financial arrangements (e.g. cash payments from embassies)
- Unwarranted or unusual specifications for dual-use equipment manufacture
- Undisclosed or incompletely declared procurement

Finance

13. This domain includes budget allocations, bank transfers and movements or transfers of capital or financial assets. The following are examples of indicators that fall within this domain:

- Signs of dual financing of the same activities
- Inability to demonstrate the commercial relevance or economic viability of the programme or activity
- Additional or unusual types of payment (special compensation for hazardous working conditions, and bonus payments to staff or gifts in kind)
- Expenditures that do not fit the stated reason and type of activity
- Unusual funding arrangements

Human resources

14. This domain includes information on persons who have been employed in or associated with a particular facility in a managerial, liaison, technical or support capacity. The following are examples of indicators that fall within this domain:

- Inconsistencies between the number of employees, their qualifications and the duties of the workforce and the declared activities of the facility
- Qualifications and background of the staff that do not match the declared activities
- Presence of active-duty military personnel in civilian facilities

Events

15. This domain includes a single happening or incidents (natural event, accident or occurrence) that may be associated with possible proscribed weapons activities. The following are examples of indicators that fall within this domain:

- Unusual outbreaks of infectious disease (unknown cause or unusual pattern)
- Unexplained toxic releases
- Patterns of efforts to deliberately destroy evidence
- Official statements by the country's leadership

Interrelationships between indicators

16. An individual indicator by itself may not be significant, but indicators from several domains taken together can be greater in value. The combination of indicators gathered over time may not prove to be conclusive, but they may constitute a picture or pattern that needs an explanation. Examples from the Commission's experience in Iraq show how the combination of several indicators can help to uncover undisclosed information or proscribed activities.

Chemical weapons

17. Early efforts to verify the chemical weapons declaration provided by Iraq to the United Nations in April 1991 soon showed that the declaration was far from complete. Inspectors obtained various indicators that Iraq had concealed important aspects of the chemical weapons programme, such as the extent of VX activities. The first indicators were the wastes containing VX degradation products found at the Muthanna site, Iraq's main chemical weapons research and production facility. The quantities of wastes found suggested that the research had been much more

extensive than declared. The second indicator was the presence of two dual-use chemicals, known to be capable of being used as VX precursors. A third indicator of intentional concealment of the programme was the unilateral destruction in 1991 of another dual-use chemical declared by Iraq in 1992.

18. The full significance of the presence of these three dual-use chemicals became fully apparent in 1995, when, after the discovery of additional documents and under pressure from inspectors, Iraq declared a much more advanced VX programme than before. Even that declaration remained only partly verified, however, owing to Iraq's unilateral destruction of the VX actually produced and gaps in the production records of the Muthanna site for 1990 and the beginning of 1991.

19. All the above indicators, although some of them were initially underestimated, contributed to a better understanding of Iraq's VX programme. Moreover, an investigation into pilot-scale production equipment acquired for chemical weapons purposes and kept hidden by Iraq until 1997 indicated its intention to preserve a chemical weapons production capability in contravention of its obligations under the provisions of the Security Council's resolutions.

Biological weapons

20. United Nations inspectors observed large quantities of bacterial growth media at Al Hakam, Iraq's main biological weapons agent production facility; this was not in itself conclusive evidence of a proscribed biological weapons programme. Later, bulk quantities of growth media were also observed in two warehouses. United Nations inspectors contacted the foreign companies involved in the supply of the media and found from export documents that even more media had been imported than Iraq had declared, which led to more intensive interviews of Iraqi personnel and repeated site inspections. Through the interview process and the procurement records as proof of delivery, it became difficult for Iraq to provide a coherent material balance for the media. In addition, United Nations inspectors had concerns about the Al Hakam facility because of its remote location, size and security arrangements.

21. With several indicators pointing to the need for further detailed investigation and with mounting pressure on Iraq for credible explanations, Iraq made an admission of a past proscribed biological warfare programme. Each indicator by itself was insufficient to develop a clear picture of events, but together these indicators proved more substantial.

Ballistic missiles

22. During the early period of United Nations inspections in Iraq, a number of admissions were eventually made by Iraq, based on cases built by inspectors using a combination of indicators. One example was Project 1728. Originally, Iraq had declared that the purpose of the project had been for the development of welding and other technologies for manufacturing agricultural pumps, but that there was also a group within Project 1728 charged with studying the possibility of manufacturing Scud engines by a process of reverse engineering.

23. Several indicators from the activities, human resources, procurement and equipment domains emerged, which when taken together strongly suggested that the production of liquid-propellant engines could have been the only purpose of Project

1728 and that it was more advanced than had been declared. Through an intense effort over a long period of time, the United Nations inspectors were able to identify more than 100 pieces of equipment that had not been destroyed during the Gulf War as claimed by Iraq and were shown to have been procured for and used in Project 1728. These included flow-forming machines, vacuum furnaces, special welding machines and a balancing machine. These machines, although not located within a single facility, collectively provided all the equipment necessary for the production of liquid-propellant engines. The United Nations inspectors' own conclusions about Project 1728, based on a number of interrelated indicators and subsequent investigations, were vindicated when Iraq finally acknowledged the truth in its declaration of November 1995, by admitting that Project 1728 had been established and operated specifically for the production of liquid-propellant missile engines, in particular for Scud missile engines.

Ongoing work on indicators

24. The use of indicators is being developed further by UNMOVIC as a valuable component of its inspection methodology. The emphasis is on identifying areas and types of data in a systematic way, including the use of computer-based tools.